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Introduction

Paradise VGA Plus Card supports several enhanced modes beyond the VGA standard. These capabilities include the ability to display text 132 columns wide on any supported monitor and graphics in 800 by 600 dot resolution on a multi-frequency monitor.

In order to take advantage of these enhancements, the Paradise VGA Plus Card includes software support for several popular software programs. The following sections will describe the procedures necessary to install these programs so that they can take full advantage of the Paradise VGA Plus Card's enhanced capabilities.

*Before you proceed, you should make a backup copy of your **Paradise VGA Plus Card Utilities** disk if you have not already done so.*

*Before you attempt to configure the software as described in the following pages, be sure you have correctly installed the Paradise VGA Plus Card. Please refer to the **Paradise VGA Plus Card User's Guide** for details on the proper installation and operation.*

Important Note: The drivers described throughout this manual assume you are using a color VGA configuration. If you are using a monochrome VGA monitor use the VGAPLUS utility to switch from monochrome VGA mapping to color VGA mapping before using the drivers. The command VGAPLUS COLOR will set your Paradise VGA Plus Card to color mapping. For more information on monochrome and color mapping and using the VGAPLUS utility refer to the *Paradise VGA Plus Card User's Guide*.

Paradise Extended 800 by 600 Graphics Mode

The Paradise VGA Plus Card can drive a multi-frequency display in an extended graphics mode with 800 dots horizontally by 600 dots vertically in sixteen simultaneous colors. This increased resolution will effectively allow you to have 56% more information than standard VGA modes on your display with software that supports this mode.

We have included software support for the following programs to take advantage of the Paradise VGA Plus Card's increased resolution in the 800 by 600 graphics mode.

- Microsoft Windows 2
- Digital Research GEM (Version 2.1 or later)
- AutoCAD from AutoDesk (Version 2.18 or later)
- Cadvance from Calcomp
- Ventura Publisher from Xerox (Version 1.1)
- Framework II from Ashton-Tate

Note: The extended resolution 800 by 600 graphics mode of the Paradise VGA Plus Card requires a multi-frequency monitor. The Paradise VGA Plus Card's 800 by 600 graphics mode is not supported on the IBM PS/2 8503, 8512, 8513 or 8514 monitors or equivalent fixed frequency displays.

You may need to adjust your multi-frequency monitor to display the 800 by 600 graphics mode properly. Use the vertical and horizontal size and position controls on your monitor to display the entire 800 by 600 graphics mode image without distortion.

132 Column Text Modes

The Paradise VGA Plus Card will support two 132 column text modes. One provides 25 rows of 132 column wide text. The second allows 43 rows of 132 column wide text to be displayed. These modes display large amounts of information at one time and work well with such applications as spreadsheets and word processors. Compared to standard 80 column by 25 row text modes, these two new modes allow 65% and 184% more text to be displayed at one time on your monitor.

These extended modes require specific software support to take advantage of their capabilities in software applications. Your Paradise VGA Plus Card includes software support for Ashton-Tate Framework II. Additionally we provide instructions for using WordPerfect (Version 4.2) and MicroPro's WordStar (Release 3.30) and WordStar Professional (Release 4) in the 132 column text modes.

Using Microsoft Windows 2 and Microsoft Excel in 800 by 600 or 640 by 480 Graphics

Note: This driver requires Windows version 2 or Microsoft Excel. Excel can be used as an application running within the standard Windows 2 environment or as a stand-alone program running in conjunction with the "runtime" version of Windows supplied as part of Excel. Both the standard Windows product and the "runtime" version of Windows will work with this driver. This driver does not support Windows/386. To use Windows/386 with your VGA Plus you should use one of the standard VGA drivers supplied with the Windows/386 product.

Choosing a Configuration.

The Paradise Windows driver supplied with your Paradise VGA Plus Card will support Windows in several different configurations. The Paradise Windows driver will display in either 640x480 graphics or 800x600 graphics. Both of these resolutions can be run using your choice of 2, 8 or 16 colors. The standard Windows VGA driver displays using 640x480 graphics with 8 colors. The Paradise Windows driver has been optimized

for performance in all modes. The number of colors on screen will affect the drawing speed of the Windows graphics and text to some degree. Fewer colors displayed on screen will result in faster operation. Lower resolution will also result in faster operation. You will want to choose the resolution and colors for your installation based on your own requirements. If you will be doing black and white desktop publishing, you might choose 800 by 600 resolution with only two colors for maximum displayed information and drawing speed. If you are working with color graphics you will want to choose a configuration with 16 colors. You can easily experiment with various configurations since changing modes only requires editing your Windows WIN.INI configuration file and does not require re-installing Windows.

Installing the Paradise VGA Plus Windows driver

Installing Windows.

You will need to run the Setup program on the Windows or Excel *Setup Disk* to install or re-install Windows on your computer system. Insert the *Setup Disk* (disk 1) in drive A: and type:

```
A > SETUP [return]
```

Follow the instructions on screen. When you get to the section where the Setup program inquires about the type of display adapter you are using, choose "Other" to use the supplied driver for the Paradise VGA Plus Card. When you choose "Other," you will be prompted to insert the disk for the supplied display driver in the A: drive. You should insert the *Paradise VGA Plus Card Utilities* disk in the A: drive and type return. You should then select option for the "Paradise VGA Plus." The Setup program will ask next about the type of keyboard and mouse being used. Answer these sections according to the instructions on screen. Next the Setup program will ask you to select the System and Terminal fonts used by Windows. You should pick the "VGA" or "Medium" font options since your screen will have the same proportions as VGA. Follow the instructions on screen to complete the remainder of the Setup program.

Editing the Configuration Information.

When the Setup program is complete, you have successfully installed Windows for use with the Paradise VGA Plus Card. You must now change Windows' configuration file called WIN.INI to select your desired configuration. Use any ASCII text file editor such as DOS's EDLIN or Windows' Notepad to edit the WIN.INI file in your Windows directory.

Using the table below add the designated commands to the beginning of the WIN.INI file according to your desired configuration.

To get...		Add or change the first four lines at the beginning of your WIN.INI file to read...
Resolution	Colors	
640x480	2 (black & white)	[display] width = 640 height = 480 colors = 2
640x480	8	[display] width = 640 height = 480 colors = 8

To get... Resolution	Colors	Add or change the first four lines at the beginning of your WIN.INI file to read...
640x480	16	[display] width = 640 height = 480 colors = 16
800x600*	2 (black & white)	[display] width = 800 height = 600 colors = 2
800x600*	8	[display] width = 800 height = 600 colors = 8
800x600*	16	[display] width = 800 height = 600 colors = 16

*800x600 graphics requires a multi-frequency monitor

Once you have edited the WIN.INI file you can start Windows and it will run in the selected configuration. You can change your Windows configuration at any point by re-editing the WIN.INI file and restarting Windows.

Configuration Notes.

If you run Windows without adding the configuration information to the WIN.INI file Windows will operate in the default 640 x 480, 8 color mode. You can then use Windows' Notepad to edit the WIN.INI file to change the configuration. Double click on the WIN.INI file from within Windows to start the Notepad editor with WIN.INI ready for editing.

Any changes you make to the Windows configuration through WIN.INI will take effect the next time you start Windows.

Do not change any other entries in your WIN.INI file or you may get unpredictable results.

Using Digital Research GEM in 800 by 600 Graphics on the Paradise VGA Plus Card

Note: This installation requires version 2.1 or later of GEM. This installation will not work correctly on versions of GEM prior to the 2.1 release.

Installing GEM for extended 800 by 600 graphics.

To install GEM for the extended resolution 800 by 600 graphics mode on the Paradise VGA Plus Card, you should first install GEM for "IBM Enhanced Card/Enhanced Display (640 x 350)" according to the normal setup instructions included with GEM Desktop.

When you have successfully installed GEM for standard EGA or VGA operation, start GEM as described in the GEM documentation.

Place the *Paradise VGA Plus Card Utilities* disk in floppy drive A: and close the drive door.

Double-click on the A: floppy drive icon and then on the GEMSETUP.APP icon in the A: floppy drive window to start the GEM Setup program.

Following the instructions contained in Part 4 sections 16 through 19 of the GEM Desktop manual, select the "Paradise VGA Plus Card (800 x 600) w/multi-frequency display" field from the "Available Graphics Card(s)" window and drag the field to the "Chosen Graphics Card" window.

Select Screen Fonts under the Categories menu and select the "Paradise VGA Plus (800 x 600)" fonts listed in the "Available Screen Fonts" window and drag them individually or as a group to the "Chosen Screen Fonts" window.

In a similar manner select the correct mouse driver and mouse ports for your configuration.

Choose Open Summary from the File menu to confirm your choices. Make sure that you have chosen a screen driver, the screen fonts, a mouse and a mouse port for your configuration.

Using AutoCAD in 800 by 600 Graphics on the Paradise VGA Plus Card

Note: When you choose a new screen driver, GEM-SETUP deletes any existing fonts, mouse selection and mouse port assignment. These selections must be made.

When you have made all your selections and checked that the Summary is complete, choose Save Summary from the File menu.

You must now exit to DOS and re-boot your computer to run GEM under your new extended resolution 800 by 600 configuration.

When the above procedure is complete, you have successfully installed GEM for use with the Paradise VGA Plus Card in extended 800 by 600 graphics. Now when you run GEM, it will operate in 800 by 600 graphics.

We have supplied a driver for AutoCAD that will allow you to use the 800 by 600 extended resolution graphics capabilities of the Paradise VGA Plus Card. The driver is in the form of an AutoCAD Device Interface or ADI driver. ADI is a generalized driver format that allows you to load drivers into memory prior to running AutoCAD. ***To use this ADI driver, you must have AutoCAD version 2.18 or later.*** This driver conforms to the AutoCAD device interface specification version 2.1.

Configuring AutoCAD for the 800 by 600 graphics mode.

1. Copy the file DS800.EXE from the supplied *Paradise VGA Plus Card Utilities* disk to your AutoCAD diskette or subdirectory. This file is a program that loads an ADI driver, which allows AutoCAD to work in the Paradise VGA Plus Card's extended resolution 800 by 600 mode.
2. Run DS800.EXE. You will get a message that reads:

—AutoCAD ADI Driver—
Paradise VGA PLUS!!! 800 x 600

This indicates that the AutoCAD driver for the 800 by 600 mode of the Paradise VGA Plus Card has been loaded into memory.

3. If you are using a mouse or graphics tablet that requires a separate driver, be sure that its driver is loaded at this point.

4. Execute ACAD to start the AutoCAD program.
5. From the main menu choose option 5 to configure AutoCAD.
6. From the configuration menu choose option 3 "Configure video display."
7. Choose the option for "ADI display" driver from the list of available video drivers. When asked for the hexadecimal interrupt code, choose the default—"7A."
8. Make sure all other configuration options are set for your equipment as appropriate for your system.
9. Exit to the main menu and keep your configuration changes.
10. AutoCAD is now ready to run in the 800 by 600 resolution graphics mode.

Using Cadvance in 800 by 600 Graphics on the Paradise VGA Plus Card

Running AutoCAD in the 800 by 600 graphics mode.

If you have not configured AutoCAD as described above, do so now. If you have done the configuration as described above, you can start AutoCAD by simply loading the "DS800" ADI driver and your mouse or other pointer driver prior to executing the AutoCAD program.

The commands can easily be incorporated into a batch file. Your batch file might look like the following.

DS800	(Loads the Paradise VGA Plus Card's 800 by 600 ADI driver.)
MOUSE	(Loads mouse driver—this would depend on type of pointer or mouse used.)
ACAD	(Starts AutoCAD program.)

To install Cadvance for use with the Paradise VGA Plus Card in the 800 by 600 graphics mode, simply copy the file **GS800.DRV** from the *Paradise VGA Plus Card Utilities* disk to your Cadvance disk or directory and rename the file as **GS.DRV**.

Example: If your Cadvance software is in a sub-directory named CAD on your C: drive, place the *Paradise VGA Plus Card Utilities* disk in the A: drive and type the following command:

```
A>COPY A:GS800.DRV C:\CAD\GS.DRV [return]
```

Now when you execute Cadvance, it will come up in the 800 by 600 graphics mode.

Note: If you are modifying the program on a floppy disk, be sure you are using a duplicate of your Cadvance disk.

The *Paradise VGA Plus Card Utilities* disk also includes a driver to allow Cadvance to operate in standard 640 by 480 VGA graphics mode. To use this driver just copy the file GSVGA.DRV to your Cadvance disk or directory and rename the file as GS.DRV.

Using Ventura Publisher in 800 by 600 Graphics on the Paradise VGA Plus Card.

Note: This installation requires Ventura Publisher release 1.1

To install Ventura Publisher for the extended resolution 800 by 600 graphics mode on the Paradise VGA Plus Card, you should first install Ventura Publisher for "IBM Enhanced Card / Enhanced Display (640 x 350)" or "IBM Personal System/2 Model 50, 60, 80 VGA (640 x 480) two colors" according to the normal setup instructions included with Ventura Publisher.

When you have successfully installed Ventura Publisher for standard EGA or VGA operation, you should insert the *Paradise VGA Plus Card Utilities* disk in your A: drive and type the following command at the A > prompt.

A >VPDRIVER [return]

The VPDRIVER program will now ask you how you have installed Ventura Publisher on your hard disk. You should follow the prompts and answer the questions appropriately. When the VPDRIVER program inquires what kind of graphics card and display you are using, you will have two choices. Choose the option for "Paradise VGA Plus and multi-frequency display (800 x 600)." Type the letter for this option. The VPDRIVER program will then ask you a series of questions about your computer system. After that the program will proceed to copy files and may prompt for the other Ventura Publisher disks.

When the above procedure is complete, you have successfully installed Ventura Publisher for use with the Paradise VGA Plus Card in 800 by 600 graphics mode. Now when you run Ventura Publisher, it will operate in the 800 by 600 graphics mode on your multi-frequency monitor.

Using Framework II in 132 Column Modes and 800 by 600 Graphics Mode

We have included drivers for Framework II to support many different configurations with the Paradise VGA Plus Card and its extended capabilities. There are drivers that support 132 columns by 25 or 43 lines of text for the "desktop" as well as drivers that support the 800 by 600 graphics mode for the "desktop" and the "zoom" [F9] function.

Depending on your choice of screen formats for the "desktop" and "zoom" screens you may use Framework II drivers for the following configurations in addition to the standard IBM EGA, VGA and PS/2 configurations.

Screen Format

"Desktop" screen	"Zoom" [F9] screen	Driver
1. 132 column x 25 line text	640 x 480 graphics	PVGA1.SC
2. 132 column x 43 line text	640 x 480 graphics	PVGA2.SC
3. 132 column x 25 line text	800 x 600 graphics	PVGA3.SC
4. 132 column x 43 line text	800 x 600 graphics	PVGA4.SC
5. 800 x 600 graphics	800 x 600 graphics	PVGA5.SC

Installing Framework II drivers for the Paradise VGA Plus Card.

Before you try to install Framework II for any of these new drivers you should first install Framework II with a screen driver chosen from the standard IBM Enhanced Graphics Adapter, VGA and PS/2 display drivers according to the instructions in the Framework II *Getting Started* manual. You should then make sure that Framework is functioning properly before proceeding with the installation of the Paradise VGA Plus Card extended drivers.

1. To install the new Framework II drivers, run the SETUP program on the Framework II Setup disk or from your Framework II subdirectory if you have Framework II installed on your hard disk. Type:

SETUP [ENTER]
2. At the "Welcome to Framework II's 'Setup' program" menu, choose option 2, "All other uses of the setup program."

3. You will then need to tell the Setup Program the location of the FWSETUP file that stores the current configuration.

If you are using a floppy system, insert your SYSTEM DISK 2 in drive B: and press 1.

If you are using a hard disk system, choose option 2 since FWSETUP should be in the current default directory.

4. At the "Main Menu" choose option 2 to change individual configuration settings.
5. From the "Change Configuration" menu choose 1 to change primary hardware configurations which include the screen driver.
6. Choose 1 to change the Screen driver. Then choose option 7, "I want to enter my own driver file name." Enter the name of the driver you wish to use from the table below and press [ENTER].

Driver Name	"Desktop" Screen Format	"Zoom" Screen Format
PVGA1.SC	132 by 25 text	640 x 480 graphics
PVGA2.SC	132 by 43 text	640 x 480 graphics
PVGA3.SC	132 by 25 text	800 x 600 graphics
PVGA4.SC	132 by 43 text	800 x 600 graphics
PVGA5.SC	800 x 600 graphics	800 x 600 graphics

For example, to choose the driver for 132 column by 43 line format for the "desktop" and 800 by 600 graphics for the "zoom" function type:

PVGA4.SC [ENTER]

Be sure to type the complete driver name including the .SC extension.

7. Type "M" to return to the main menu.
8. At the main menu type 7 to "Save All New Settings."
9. You will then be prompted to insert your Setup Disk in drive A:. You must insert your *Paradise VGA Plus Card Utilities* disk at this point since this is where the new drivers are located. Press the space bar when you have the *Paradise VGA Plus Card Utilities* disk in drive A:.

Using WordStar 3.3 in 132 Column Text Mode

10. Again the Setup program will want to know where to store the FWSETUP configuration file. You should do as you did in step 3 and choose the option for your setup (1: for floppy systems; 2: for hard disk systems). Then strike a key.

You have now installed Framework II for the new drivers. You can now start Framework II in the normal manner, and Framework II will use the selected capabilities of the Paradise VGA Plus Card.

The following instructions will allow you to configure WordStar Release 3.30 for use in the 132 column text modes. This procedure will patch a copy of WordStar to increase the number of rows and columns available to the program.

Warning: Since this procedure modifies your WordStar program, make sure you are using a *copy* of the WordStar software or that you have copied the program to your hard disk.

Modifying WordStar to support 132 column text.

1. Make a copy of the file WS.COM on your WordStar diskette or hard disk subdirectory. You should give this file a new name such as WS132.COM. This new file WS132.COM will be the file you modify.

COPY WS.COM WS132.COM [return]

2. Copy the program DEBUG.COM from your DOS system disk to your WordStar diskette or directory.

COPY A:DEBUG.COM C:\WS [return]

3. Copy the files MAKE.BAT, 43, and 25, from the *Paradise VGA Plus Card Utilities* disk to your WordStar diskette or directory. Also copy the file VGAPLUS.EXE to your WordStar disk or directory. (You will need this file to run WordStar in the 132 column modes.)

For example if you have WordStar located in a directory called WS on your C: drive.

COPY A:MAKE.BAT C:\WS

COPY A:43 C:\WS

COPY A:25 C:\WS

COPY A:VGAPLUS.EXE C:\WS

4. Change drives and directory to your WordStar disk or directory if you are not already logged there.

5. Execute the MAKE batch file with the following command:

MAKE *nn filename* [return]

Where *nn* is the number of rows of 132 column text you want to use. This number must be either 43 or 25; "filename" is the new name of your WordStar program. For example: to modify the file WS132.COM for 132 column by 43 line text type the following,

MAKE 43 WS132.COM [return]

You will be prompted if you really want to do this. Then the MAKE batch file will modify your WordStar to support the extended rows and columns.

Running WordStar 3.3 in 132 column text mode.

1. First modify your WordStar program as described in the procedure above.
2. Use the appropriate 132 column mode switching program from the *Paradise VGA Plus Card Utilities* disk to switch to the correct 132 column mode. Use the chart below to determine the correct command.

To switch to	<i>nn</i> =	Run the command
132 column by 25 line text	25	VGAPLUS 13225
132 column by 43 line text	43	VGAPLUS 13243
Standard 80 column by 25 line text		VGAPLUS VGA

You must run the 132 column mode switching software prior to starting your modified copy of WordStar.

For example: If you have modified your WordStar program for 132 column by 43 line text as described above, run the following commands to start WordStar:

```
VGAPLUS 13243 [return]
WS132 [return]
```

3. When you exit WordStar, you will want to run the program STDCOLOR.COM to return the screen to standard 80 column by 25 line text.

Note: You may want to incorporate all the commands needed to start WordStar in 132 column mode in a batch file so the process of starting the program will be automatic. Example batch file contents:

```
VGAPLUS 13243 [return]
WS132 [return]
VGAPLUS VGA [return]
```

Using WordStar Professional Release 4 in 132 Column Text Modes

WordStar Professional version 4.00 can make use of 132 column text modes without special modification to the software. All you need to do is tell the software the screen size in number of rows and columns of text and the software will be able to take advantage of the new configuration.

Installing WordStar Professional for use in 132 column text modes.

Install WordStar Professional for the appropriate screen size as described in *Appendix C—Customizing WordStar* of the WordStar Professional documentation.

1. Copy WordStar Professional Release 4 to your working floppy disks or hard disk as directed in your WordStar Professional documentation.
2. Start WordStar's WSCCHANGE installation program.
3. Type in the name of your WordStar program file. For example WS.EXE. Next you will be prompted to enter the name of the file to which you wish to save your changes. You may wish to call this file WS132.EXE.
4. At the Main Installation Menu choose option A for Console options.
5. At the Console Menu choose option A for Monitor options.
6. At the Monitor Menu choose option C for Screen sizing.
7. At the Screen Sizing Menu choose options A for Height. You will then be asked to enter the correct value for the screen format you will use. This should be 25 for a 132 column by 25 row screen or 43 for a 132 column by 43 row screen. You will then be returned to the Screen Sizing Menu.
8. At the Screen Sizing Menu choose option B for Width. You will then be asked to enter the correct value for the screen format you will use. This should be 132 for either of the 132 column text modes. You will then be returned to the Screen Sizing Menu.
9. When you have made your choices, type X to return to the Monitor Menu. Type X from the Monitor Menu to return to the Console menu. Type X from the Console Menu to return to the Main Installation menu. Type X at the Main Installation Menu to indicate that you have completed your installation. You will be asked to confirm your choices and the WSCCHANGE program will modify and save the WordStar program.

You will not need to run this procedure again unless you wish to change the configuration of your WordStar program.

Using WordPerfect in 132 Column Text Mode

Running WordStar Professional in 132 column text modes.

1. Use the appropriate 132 column mode switching program on the *Paradise VGA Plus Card Utilities* disk to switch to the 132 column mode you want to use. Use the chart below to determine the correct command.

To switch to...	Run the command
132 column by 25 row text	VGAPLUS-13225
132 column by 43 row text	VGAPLUS-13243
Standard 80 column by 25 row text	VGAPLUS-VGA

2. Start your modified copy of WordStar. You can now take advantage of the the full screen capabilities of the 132 column text modes in WordStar Professional Release 4.

Note: You may want to incorporate all the commands needed to start WordStar Professional in 132 column mode in a batch file so the process of starting the program will be automatic. Example batch file contents:

```
VGAPLUS 13243 [return]
WS132 [return]
VGAPLUS VGA [return]
```

Some programs like WordPerfect version 4.2 can make use of 132 column text modes without any special modification to the software. All you need to do is tell the software the number of rows and columns of text you can display on your monitor and the software will be able to take advantage of the new configuration.

Running WordPerfect in 132 column text mode.

1. Use the appropriate 132 column mode switching program on the *Paradise VGA Plus Card Utilities* disk to switch to the 132 column mode you want to use. Use the chart below to determine the correct command.

To switch to...	Run the command
132 column by 25 row text	VGAPLUS 13225
132 column by 43 row text	VGAPLUS 13243
Standard 80 column by 25 row text	VGAPLUS VGA

You must run the 132 column mode switching software prior to starting WordPerfect.

2. Start WordPerfect with a /S after the name of the program to get to the Set-up Menu.

WP/S [return]

3. Choose option 3 (Set Screen and Beep Options).
4. Enter the number of rows (25 or 43) and the number of columns (132). Hit the [return] key until you return to the Set-up Menu.
5. Choose option 0 to accept the configuration and enter WordPerfect.
6. When you exit WordPerfect, you will want to run the command VGAPLUS VGA to return the screen to standard 80 column by 25 line text.

Once you have configured WordPerfect, you will not need to use the Set-up Menu unless you wish to change the configuration.

When you are in the WordPerfect program, you can set your margins ([shift] [F8]) to be as wide as 132 characters across.

Note: You may want to incorporate all the commands needed to start WordPerfect in 132 column mode in a batch file so the process of starting the program will be automatic. Example batch file contents:

```
VGAPLUS 13243 [return]
WP [return]
CLS [return]
VGAPLUS VGA [return]
```

VGA and Extended VGA Programming.

This section describes how to access the enhanced modes of the Paradise VGA Plus Card. The information in this section is intended for users familiar with assembly language programming. An understanding of this information is not necessary for normal operation of the Paradise VGA Plus Card.

The VGA standard supports a variety of video modes. These video modes can be accessed through

standard video BIOS calls from assembly language as well as high level language routines. You are probably familiar with many of these video modes already.

When you start up in DOS, your machine is usually in standard 80 column text or "alpha-numeric" mode. On a color system this is mode 3+. VGA 640 by 480 dot 16 color graphics is mode 12H. The following table lists the standard VGA video modes available with the Paradise VGA Plus Card.

Standard VGA modes

Mode (hex)	Type	Colors (1)	Columns	Rows	Buffer @	Char. Size (2)	Resolution (3)
0	text	16/256K	40	25	B8000	8x8	320x200
0*	text	16/256K	40	25	B8000	8x14	320x350
0+	text	16/256K	40	25	B8000	9x16	360x400
1	text	16/256K	40	25	B8000	8x8	320x200
1*	text	16/256K	40	25	B8000	8x14	320x350
1+	text	16/256K	40	25	B8000	9x16	360x400
2	text	16/256K	80	25	B8000	8x8	640x200
2*	text	16/256K	80	25	B8000	8x14	640x350
2+	text	16/256K	80	25	B8000	9x16	720x400
3	text	16/256K	80	25	B8000	8x8	640x200
3*	text	16/256K	80	25	B8000	8x14	640x350

(continued)

Standard VGA modes (continued)

Mode (hex)	Type	Colors (1)	Columns	Rows	Buffer @	Char. Size (2)	Resolution (3)
3+	text	16/256K	80	25	B8000	9x16	720x400
4	graphics	4	40	25	B8000	8x8	320x200
5	graphics	4	40	25	B8000	8x8	320x200
6	graphics	2/256K	80	25	B8000	8x8	640x200
7	text	4	80	25	B0000	9x14	720x350
7+	text	4	80	25	B0000	9x16	720x400
D	graphics	16/256K	40	25	A0000	8x8	320x200
E	graphics	16/256K	80	25	A0000	8x8	640x200
F	graphics	4	80	25	A0000	8x14	640x350
10	graphics	16/256K	80	25	A0000	8x14	640x350
11	graphics	2/256K	80	30	A0000	8x16	640x480
12	graphics	16/256K	80	30	A0000	8x16	640x480
13	graphics	256/256K	40	25	A0000	8x8	320x200

(1) Colors: Where two numbers are given, the first is the number of colors available at one time; the second is the total number of possible colors.

(2) Character Size: The size of the matrix that contains each text character.

(3) Resolution: all 200 line modes are "double-scanned" to display 400 lines on screen.

* EGA text modes with 8x14 and 9x14 character sizes and 350 lines vertical resolution.

+ VGA text modes with 9x16 character size and 400 lines vertical resolution.

Default display modes are 3+ for color monitors and 7+ for monochrome monitors.

The Paradise VGA Plus Card adds six additional modes to the standard VGA modes. These modes are the 800 by 600 extended VGA graphics modes, the 132 column by 25 row text modes and the 132 column by 43 row

text modes. These modes have each been assigned mode identification numbers. The table below summarizes these new modes.

The Paradise VGA Plus Card's extended VGA modes

Mode (hex)	Type	Colors (1)	Columns	Rows	Buffer @	Char. Size (2)	Resolution	Equip. Flag (3)
54†	text	16/256K	132	43	B8000	7x9	924x387	color
54*	text	16/256K	132	43	B8000	8x9	1056x387	color
55†	text	16/256K	132	25	B8000	7x16	924x400	color
55*	text	16/256K	132	25	B8000	8x16	1056x400	color
56†	text	4	132	43	B0000	7x9	924x387	mono
56*	text	4	132	43	B0000	8x9	1056x387	mono
57†	text	4	132	25	B0000	7x16	924x400	mono
57*	text	4	132	25	B0000	8x16	1056x400	mono
58	graphics	16/256K	100	75	A0000	8x8	800x600	color
59	graphics	2	100	75	A0000	8x8	800x600	mono

(1) Colors: Where two numbers are given, the first is the number of colors available at one time; the second is the total number of possible colors.

(2) Character Size: The size of the matrix that contains each text character.

(3) Equipment Flag: Required setting of the BIOS data value at address 40:10 bits 5 and 4. (01 or 10 = color, 11 = mono)

† = fixed frequency monitor setting.

* = multi-frequency monitor setting.

The monitor setting is determined by lever one of the DIP switch on the VGA Plus Card.

Programming the extended modes of the Paradise VGA Plus Card is similar to programming the standard VGA video modes of the IBM PS/2 VGA and PS/2 Display Adapter. You should refer to the following two IBM publications for details on program VGA in general:

IBM Personal System/2™ Display Adapter Technical Reference, April 1987

IBM part number 68X2251 S68X-2251-0

IBM Personal System/2™ and Personal Computer BIOS Interface Technical Reference, April 1987

IBM part number 68X2260 S68X-2260-00

Extended BIOS calls are provided to support the VGA Plus Card's extended modes. If you are writing a driver or application that uses the extended VGA modes of the VGA Plus Card you should use the algorithms and tools described in the file PROGRAM.TXT on the *Paradise VGA Plus Card Utilities* disk. Read or print this file for details on the recommended methods for programming the Paradise VGA Plus Card.

Notes:



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